submitted. The subject legal proceedings discussed herein were only recently concluded in part and are still pending in other parts.

In accordance with the Examiner's objection in the Office Action, applicants submit a revised "Abstract of the Disclosure" submitted on a separate sheet herewith.

Claims 36 to 41 have been cancelled, and claims 42 to 53 have been added.

Claims 42 to 53 have been written to address the Examiner's points. The added claims are believed to be in full compliance with 35 U.S.C. §§ 101, 102 and 112.

In the Office Action of June 14, 2001, the Examiner rejected claims 36 to 41 pursuant to 35 U.S.C. § 112, ¶ 1. The Examiner found that the disclosure describes and is enabling for a modified maize EPSPS DNA sequence, but the disclosure does not describe, and was not considered to be enabling for, any other modified EPSPS DNA sequences.

In response, Applicants note that the now-pending claims are drawn to nucleic acids encoding modified EPSPS enzyme of plant origin. The specification states expressly that the modified DNA molecule may be of plant origin (for example, page 2 lines 8-9, and page 4, line 1). The mutations at positions 102 and 106 relative to a mature EPSPS are described at page 3, lines 22-27 and in the examples. By referring to an enzyme of "plant origin", it should be clear that modified nucleic acids are encompassed by this term, since the claimed modified nucleic acid sequences are derived from nucleic acid sequences of plant origin (the modified sequences themselves are not found naturally in plants).

As explained below, there is a recognized highly conserved region in all known EPSPS enzymes of plant origin, and a person of ordinary skill in the art would easily recognize the Thr>Ile and Pro>Ser mutations at relative positions 102/106 of the mature enzyme, even if the analogous amino acid positions in certain plant EPSPS enzymes are positioned slightly differently.

The domain of the EPSPS enzyme overlapping relative positions 102 to 106 has been recognized in the prior art as being highly conserved in plants. See, for example, the following U.S. Patents which refer to this domain as being highly conserved: 5,859,347 (" in the highly conserved region having the sequence: -L-G-N-A-G-T-A- located between positions 80 and 120 in the mature wild-type EPSP synthase amino acid sequence"); 5,145,783 (See Abstract: "The glyphosate-tolerant EPSP synthases are prepared by substituting an alanine residue for a glycine

residue in a conserved sequence found between positions 80 and 120 in the mature wild-type EPSP synthase."); 5,310,667 (See Abstract: "The glyphosate-tolerant EPSP synthases are prepared by substituting an alanine residue for a glycine residue in a first conserved sequence found between positions 80 and 120, and either an aspartic acid residue or asparagine residue for a glycine residue in a second conserved sequence found between positions 120 and 160 in the mature wild type EPSP synthase."). Indeed, even Patent 5,188,642 cited by the Examiner refers to this domain as a "conserved region."

The EPSPS enzymes in all plant species have significant similarity, as shown, for example, in Patent 5,310,667 Figures 1a-b, while the similarity of bacterial-derived and plant-derived EPSPS is only about 50% (*Id.*). It is especially noteworthy that the 667 reference demonstrates that the EPSPS domain of relative position range 100 to 111 has 100% identicality in Petunia, Tomato, Arabidopsis, Soybean, Maize, and Brassica napus plants. Another reference, WO 00/66746, has demonstrated the same similarity of the EPSPS sequence and the same identicality of the conserved region in rice. No references to applicants' knowledge suggest any significant dissimilarity of the EPSPS enzyme among plants or any significant differences in the highly conserved region overlapping the mutated EPSPS of the present invention.

Thus, a person of ordinary skill in the art would have appreciated from applicants disclosure that the invention is described and enabled as broadly as it is now claimed. The description of EPSPS enzymes of plant origin is described in the Specification, in those same words, and thus evidences possession of what is now claimed. See, again, page 2, line 8 and page 4, line 1. A person of ordinary skill (who in this field of art would be highly skilled) would appreciate an enabling disclosure of how to make the Thr>Ile and Pro>Ser mutations not only in maize, but in other EPSPS mature enzymes of plant origin, such as those known from the prior art cited above.

Further, in view of the above demonstrated similarity of the EPSPS genes and enzymes, the Patent Office has, from the first patents directed to mutated EPSPS to the present time, consistently granted claims without any limitation on the origin of the mutated EPSPS. See the patents listed in the Appendix 1, which identifies the relevant patents and a sample of the issued claims. This is evidence that the similarity of EPSPS genes encoding EPSPS enzymes of plant

origin is recognized by persons skilled in the art.

The Examiner has also stated that "Applicant has only provided guidance for the isolation and modification of a maize EPSPS encoding gene." It is noted, however, that prior art Patent 5,310,667 described the isolation of EPSPS cDNA of various plants. There is no objective basis for the assertion that the teachings of the prior art Patent 5,310,667 and the present application are not sufficient to enable any person of ordinary skill in the art to isolate an EPSPS cDNA of plant origin, and to modify the DNA to make and use DNA molecules encoding a modified EPSPS enzyme wherein the a first EPSPS coding sequence that normally encodes a threonine residue of a mature EPSPS sequence is modified to encode isoleucine of the mature EPSPS sequence, and a second EPSPS coding sequence that normally encodes a proline residue of a mature EPSPS sequence is modified to encode serine of the mature EPSPS sequence, wherein the first and second residues are respectively located at relative positions 102 and 106 of a mature EPSPS sequence encoded by said DNA molecule.

The Examiner also stated that "it would have required undue trial and error experimentation for one of ordinary skill in the art ... to isolate all DNA sequences encoding a 5-enol pyruvylshikimate-3-phosphate synthase, modify said DNA sequences while preserving enzyme activity, screen through the myriad of modified DNA sequences to identify those that are tolerant to glyphosate, transform plants or other cells with the identified DNA sequences and determine which modified DNA sequences that would protect said transformed from herbicide damage." That rejection has no application to the present pending claims. The application teaches and the claims are directed to EPSPS enzymes having a Thr>Ile and a Pro>Ser mutation at relative positions 102/106 of the mature enzyme. There is no undue experimentation for a skilled artisan to make the specific mutations enabled in the application and provided in the claims (or other further mutations in nonessential parts of the molecule). Nor is there need to "screen through the myriad of modified DNA sequences to identify those that are tolerant to glyphosate," because the claims are directed to specific mutations in a specific conserved region of the plant EPSPS enzyme. At most, an EPSPS cDNA from another plant may have to be sequenced to identify the precise location of the conserved region overlapping the 102/106 positions taught by the applicants, but that is commonplace work of a laboratory technician, not undue

experimentation. Finally, all common plants or at least those of interest had been transformed at the time of the present application, and neither transformation nor herbicide testing is undue experimentation, but, again, commonplace work performed by laboratory technicians. See, in particular WO 95/06128 for maize.

Given the state of the art at the time of the applicants' application, there is no objective basis to suggest that a person of ordinary skill in the art, using the information in the instant application, could not have isolated any plant EPSPS cDNA, mutated the DNA to encode the Thr>Ile and a Pro>Ser mutations at relative positions 102/106 of the mature enzyme, transformed plants with the modified DNA, and obtained a plant having increased glyphosate tolerance.

The Examiner also rejected the now-cancelled claims under 35 U.S.C. § 102 in view of Shah Patent 5,188,642. The rejection is believed to be mooted by this amendment, since Shah does not teach the claimed modifications.

RULE 56 DISCLOSURE

Although this Rule 56 disclosure may not be required, applicants wish to avoid any subsequent allegation that the litigation matters were material, particularly in view of *Newell Window Furnishings, Inc. v. Springs Window Fashions Division, Inc.*, Unreported, (Fed. Cir. July 2, 2001).

The pRPA-RD-125 construct disclosed at page 26 of the application ("RD-125") is a fusion encoding a chloroplast transit peptide referred to in the application as the Optimized Transit Peptide ("OTP"), which is disclosed and claimed in U.S. Patents RE36,449; and the EPSPS sequence, SEQ ID. No.: 4 of this invention, including the ATG sequence encoding the single methionine amino acid at 5'; together with a polyadenylation signal sequence consisting of the 3' nontranslated region of the nopaline synthase gene from *Agrobacterium tumefaciens* T-DNA (NOS 3"). RD-125 has been fused to a variety of conventional promoters and introns. RD-125 fused to the rice actin 1 promoter and intron (McElroy *et al*, 1990) provides the glyphosate tolerance in Roundup Ready® corn which has been commercially grown since 1998. The RD-125-containing corn is, in fact, the only commercial glyphosate tolerant corn currently sold anywhere in the world, and represents about 6.1 % of the approximately 78 million of corn acres

grown every year by American farmers, and which is expected to increase dramatically once shipment of the RD-125 - containing corn and corn products is approved in Europe.

The commercial success of the present invention has spawned litigations and certain claims of inventorship by others. Pursuant to Rule 56, applicants summarize the background and status of the litigations and claims. Applicants do not include the voluminous files, which include transcripts of testimony, documents and arguments, but will provide all such background material if required by the Examiner.

History of SEQ ID. No.: 4

The corporate assignee of the application, Rhône-Poulenc Agro S.A., now Aventis CropScience SA ("RPA"), entered into a Partnership Agreement dated January 31, 1986 with Calgene, Inc. for the purpose of developing Calgene's mutated bacterial aroA [EPSPS] gene, which had demonstrated some tolerance to the herbicide glyphosate in bacterial screens. The work involved, *inter alia*, Dr. Luca Comai from Calgene, and one of the inventors of the present application, Dr. Georges Freyssinet from RPA. Dr. Comai is the named inventor of U.S. Patents 4,535,060, 4,769,061 and 5,094,945, which disclosed that bacterial aroA mutated gene and its glyphosate tolerance properties. The Calgene aroA gene had been modified to encode a single mutation Pro>Ser in the conserved region at relative position 106 of the mature aroA enzyme (actual, position 101). This gene, however, never provided sufficient glyphosate tolerance to have any agronomic value.

During this effort, the partnership's scientific committee, which included both Drs. Comai and Freyssinet, decided to conduct further random bacterial mutagenesis using known methods to identify other glyphosate tolerant mutations in the EPSPS aroA gene. Dr. Comai conducted the experiments, and identified that aroA modified to have the Thr>Ile mutation at relative position 102 (actual, position 97) (and two other mutations) in the mature bacterial enzyme provided some level of glyphosate tolerance. Subsequent tests by both Calgene and RPA found that plants transformed with this mutated gene still did not provide any agronomically useful glyphosate tolerance. Further, testing in 1989 indicated that the Thr>Ile mutation in the aroA triggered toxicity to bacteria, which was never explained.

In 1989, Dr. Comai proposed a series of additional random and site-specific mutations,

including combining the previously identified mutations in a single bacterial aroA gene. The partnership scientific committee authorized Dr. Comai to proceed with the experiment. However, that experiment ended without such mutated genes ever being made (much less tested), and Dr. Comai left Calgene by December 1989.

RPA's funding of the partnership research efforts had then also expired, and the partnership efforts were put to sleep. To applicants' knowledge, neither Dr. Comai nor Calgene conducted any further work on glyphosate tolerance after December 1989. Further, to applicants' knowledge, neither Dr. Comai nor Calgene had ever conducted any experiments with any EPSPS genes except for the work with the *Salmonella typhimurium* bacterial aroA, and, specifically, had never attempted any work to isolate an EPSPS gene of plant origin or attempt to mutate any plant-derived EPSPS gene. Nothing in the records of the litigations demonstrates the contrary.

The first three-named inventors then began an independent effort at RPA to isolate the cDNA for EPSPS from maize, and to sequence it. That effort lasted through mid-1991. In the meantime, the RPA inventors arranged for a related company to mutate the maize EPSPS gene. Essentially, the concept was to make mutations in the maize EPSPS gene corresponding to the three mutations known to the inventors that had shown some level of increased glyphosate tolerance, and then to combine all such mutations in every configuration. By the time that the mutations were actually made to the maize EPSPS gene, the three mutations in the conserved region had been published. The Pro>Ser mutation at relative position 106 (actual, 101) had been published by Comai in *salmonella* bacteria (D.M. Stalker et al "A Single Amino Acid Substitution . . . Synthase Confers Resistance to the Herbicide Glyphosate" (1985), J. Bio. Chem. 260:4724-4728; Comai U.S. Patents 4,769,061 and 5,094,945); Monsanto Company had published a Gly>Ala mutation at relative position 101 in EPSPS genes of plant origin (European equivalent of U.S. Patent 5,310,667); and Monsanto had published also the Thr>Ile mutation in a plant EPSPS at relative position 102, corresponding to the bacterial mutation identified earlier by the Calgene - RPA partnership (T. Ruff *et al.*, May 1991, Supplement to Plant Physiology, Vol. 96 No. 1 at 94). The inventors' configurations for the mutations of the maize EPSPS gene included, among others, the combination of the Thr>Ile and Pro>Ser mutations. That gene came to be known as the "double-mutated maize EPSPS gene" or "DMMG." DMMG, as well as other

8

mutated EPSPS genes, were then made by the applicants.

Development of RD-125

The inventors conducted bacterial screens of the new DMMG gene, which was favorable. Thereafter, RPA arranged to send constructs that included the DMMG to DeKalb Genetics Corporation, who transformed corn with the constructs and tested the resulting plants. Construct RD-125, as identified above, was made by RPA's Dr. Rick DeRose, and was sent to DeKalb in February 1993. In December 1994, RPA licensed DeKalb to use RD-125 for any purpose. ("1994 Agreement")

DeKalb's tests indicated that several corn transformation events containing RPA's OTP and DMMG provided acceptable glyphosate tolerance in the field. DeKalb subsequently entered into license agreements with Monsanto to commercialize one or more of these events. One such event was labeled "GA21," which included RD-125 fused to the rice actin 1 promoter and intron. This became the Roundup Ready® corn in current commercial use.

The First Greensboro Litigation

In October 1997, RPA sued DeKalb to rescind the 1994 Agreement, alleging that DeKalb committed fraud. If the Agreement were rescinded, RPA asserted infringement of RPA's patent on the OTP (now RE36,449) and misappropriation of RPA's trade secret RD-125. The case was titled *Rhône-Poulenc Agro S.A. v. Monsanto Company and DeKalb Genetics Corporation*, United States District Court For The Middle District of North Carolina, Civil Action No. 1:97cv1138. ("the Greensboro litigation"). In April 1999, the jury found that DeKalb had defrauded RPA into entering into the 1994 Agreement, and awarded RPA significant compensation. Later, in a second trial, another jury found that DeKalb's GA21 Roundup Ready corn infringed RPA's OTP patent, and that DeKalb misappropriated RPA's RD-125, which remained a trade secret despite WO 95/06128 until 1997. On February 8, 2000, the district court affirmed the jury verdicts in all respects, rescinded the1994 Agreement, and enjoined DeKalb from further patent infringement. The court's exhaustive decision is attached hereto as Appendix 2, together with the Court's Final Judgment and Injunction (Appendices 3 and 4). The district court's judgment is now on appeal to the Federal Circuit. *Rhóne-Poulenc Agro, S.A. v. DeKalb Genetics Corporation and Monsanto Company*, United States Court of Appeals for the Federal

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Circuit, Nos. 00-1218, 00-1266, 00-1350, 00-1351, 00-1352.

The Second Greensboro Litigation

During the above proceedings, the PTO issued U.S. Patent 6,040,497 to DeKalb, which claimed the GA21 corn transformation event, as well as other events based on the RPA's OTP and DMMG genetic materials. RPA amended its pleadings to include a claim that its RPA inventors should be added as joint-inventors of this patent, as well as three others, under 35 U.S.C. § 256. Two of the patents were resolved without trial. A third jury trial was held in August 2000, resulting in a verdict that RPA had proven that its inventors should be added to U.S. Patent 6,040,497 and another DeKalb patent, U.S. Patent 5,554,798, which was directed to glyphosate tolerant corn. The jury verdict form is attached as Appendix 5. The matter is now before Chief Judge N. Carlton Tilley, Jr. to resolve final inventorship issues. One issue before the court is DeKalb's assertion that the DMMG was nothing more than an extension of Dr. Comai's suggestion to combine the mutations in a bacterial aroA described above. Appendices 6 - 9 are the post-jury trial arguments which were filed in that case. Appendix 9 is applicants assignee's request to file an additional brief in response to DeKalb's arguments relating to Dr. Comai, on the grounds that applicants' assignee never had a proper opportunity to respond to the issues raised by DeKalb in its briefs (since the briefs were simultaneously filed). The Court did not grant that motion.

The Calgene - RPA Arbitration

In the meantime, after the first jury found for RPA and awarded compensation, Calgene LLC, the successor to Calgene, Inc., which by now had been acquired by Monsanto, filed an arbitration action pursuant to the above-identified partnership agreement on May 27, 1999. The matter was titled: *Calgene LLC v. Rhone-Poulenc Agro S.A.*, American Arbitration Association Case No. 50 T 153 00190 99. Calgene alleged, *inter alia*, that the OTP and DMMG were partnership property, and that both had been jointly made with Calgene's Dr. Luca Comai. Calgene argued the same evidence as DeKalb presented in the Second Greensboro Litigation, and further expanded upon it.

Following the appointment of a three-member arbitration panel, hearings, including evidentiary presentation and argument, were held on: November 14-16, 2000; December 5-7 and

12-14, 2000; March 5-8 and 20-21, 2001; April 10-11, 2001; May 14-15, 2001; and August 8, 2001. The evidentiary record in the Arbitration includes approximately 3,900 pages of hearing transcripts and 300 exhibits, as well as pre- and post-trial briefs.

The Arbitrators rendered the Award, and filed it with the American Arbitration Association on September 25, 2001. Aventis has moved in the United States District Court for the District of Delaware to confirm the arbitration Award, but no action has yet taken place in that proceeding. In accordance with AAA International Arbitration Rules, the Award is confidential. *See* IAR Article 27(4) ("An award may be made public only with the consent of all parties or as required by law.") Thus, the Award is not being filed herewith. However, should the Examiner state that the entirety of the Award is required to be filed in this application under the PTO rules and regulations, applicants will so file the Award as "required by law." In pertinent part, however, as required to be disclosed under PTO Rule 56, applicants note that the arbitrators held that the DMMG was not jointly made with Dr. Luca Comai or others at Calgene.

Comparative Testing

Among the evidence submitted to the arbitrators were results of tests conducted by RPA that compare, *inter alia*, the glyphosate tolerance provided by the Thr>Ile and Pro>Ser mutations in a bacterial aroA gene and in a gene derived from plants. The expert report of the test and the results are attached hereto as Appendix 10.

As can be best observed in the photographs Exhibits 9 &10, plants transformed with constructs containing the Thr>Ile and Pro>Ser mutation in a plant -derived gene show significantly increased glyphosate tolerance compared to the Thr>Ile and Pro>Ser mutations in a bacterial gene.

Other

Applicants further submit for the record, as Appendix 11, a communication from the European Patent Office, dated March 7, 2000 in connection with a corresponding application. The communication is in French, and a translation is not available. It can be noted, however, that the same prior art is applied as has been cited in this record. The issue is still on appeal in the EPO.

Based on the foregoing, reconsideration of the rejections and favorable action on claims

42 to 47 is requested.

In the event that the Examiner would like applicants to further explain the Appendices or the nature of the litigations here disclosed, the undersigned counsel would be pleased to provide such further detail in an interview or by response to any request by the Examiner.

Respectfully submitted,

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Encl: Abstract of the Disclosure
Appendices 1 to 11:

1. Selected EPSPS - Related Patents and Claims
2. Memorandum Opinion, dated February 8, 2000 (by Chief Judge Tilley)
3. Order Directing Entry of Final Judgment Pursuant to Federal Rule of Civil Procedure 54(b) As to Certain Claims Asserted Against DeKalb
4. Injunction, dated February 8, 2000 (by Chief Judge Tilley)
5. Verdict Form, dated September 1, 2000
6. RPA's Post-Trial Brief of Findings of Fact and Conclusions of Law
7. DeKalb's Post-Trial Proposed Findings of Fact and Conclusions of Law
8. DeKalb's Response to RPA's Post-Trial Brief of Findings of Fact and Conclusions of Law
9. RPA's Motion to Strike
10. Report - Comparison of Glyphosate Tolerance of Four Coding Sequences in Transgenic Tobacco
11. Decision de rejet de la demande de brevet Europeen (Article 97(1) CBE) - Application No. 96 925 812.8

Petition for Extension

::ODMA\MHODMA\CB;166850;1

APPENDIX 1

SELECTED EPSPS - RELATED PATENTS AND CLAIMS

4,535,060 - "Inhibition Resistant 5-enolpyruvyl-3-phosphoshikimate Synthase, Production and Use":

Claim 4: A DNA sequence of less than 5 Kb having a structural gene coding for a glyphosate resistant 5-enolpyruvyl-3-phosphoshikimate synthetase.

4,769,061 - "Inhibition Resistant 5-enolpyruvyl-3-phosphoshikimate Synthase, Production and Use":

Claim 7: A plant cell having a gene encoding for a mutated glyphosate resistant 5-enolpyruvyl-3-phosphoshikimate synthase enzyme, said gene being heterologous to said plant cell and under the transcriptional control of regulatory signals functional in said plant cell.

4,940,835 - "Glyphosate Resistant Plants":

Claim 1: A chimeric plant gene which comprises:
(a) a promoter sequence which functions in plant cells;
(b) a coding sequence which causes the production of RNA, encoding a chloroplast transit peptide/5-enolpyruvylshikimate-3-phosphate synthase fusion polypeptide, which chloroplast transit peptide permits the fusion polypeptide to be imported into a chloroplast of a plant cell; and
(c) a 3' non-translated region which encodes a polyadenylation signal which functions in plant cells to cause the addition of polyadenylate nucleotides to the 3' end of the RNA;
the promoter being heterologous with respect to the coding sequence and adapted to cause sufficient expression of the fusion polypeptide to enhance the glyphosate resistance of a plant cell transformed with the gene.

5,094,945 - "Inhibition Resistant 5-enolpyruvyl-3-phosphoshikimate Synthase, Production and Use":

Claim 17: A DNA sequence encoding a 5-enolpyruvyl-3-phosphoshikimate synthase comprising at least one mutation in the amino acid 90-110 region whereby said synthase is glyphosate resistant.

5,188,642 - "Glyphosate Resistant Plants":

Claim 8: A glyphosate-resistant dicotyledonous plant seed, said seed comprising a

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chimeric plant gene having:

i) a promoter sequence which functions in plant cells;

ii) a coding sequence which causes the production of RNA, encoding a chloroplast transit peptide/5-enolpyruvylshikimate-3-phosphate synthase fusion polypeptide, which chloroplast transit peptide permits the fusion polypeptide to be imported into a chloroplast of a plant cell; and

iii) a 3' non-translated region which encodes a polyadenylation signal which functions in plant cells to cause the addition of polyadenylate nucleotides to the 3' end of the RNA,

where the promoter is heterologous with respect to the coding sequence and adapted to cause sufficient expression of the fusion polypeptide to enhance the glyphosate resistance of a plant cell transformed with said gene.

5,633,435 - "Glyphosate-Tolerant-Enolpyruvylshikimate-3-Phosphate Synthases":

Claim 4. A recombinant, double-stranded DNA molecule comprising in sequence:
a) a promoter which functions in plant cells to cause the production of an RNA sequence;
b) a structural DNA sequence that causes the production of an RNA sequence which encodes a EPSPS enzyme having the sequence domains:
-R-X_1-H-X_2-E-(SEQ ID NO:37 [*i.e.*, ArgXaaHisXaaGlu]), in which
X_1 is G, S, T, C, Y, N, Q, D or E;
X_2 is S or T; and
-G-D-K-X_3 -(SEQ ID NO:38 [*i.e.*, GlyAspLysXaa]), in which
X_3 is S or T; and
-S-A-Q-X_4-K-(SEQ ID NO:39 [*i.e.*, SerAlaGlnXaaLys]), in which
X_4 is A, R, N, D, C, Q, E, G, H, I, L, K, M, F, P, S, T, W, Y or V; and
-N-X_5-T-R-(SEQ ID NO:40 [*i.e.*, AsnXaaThrArg]), in which
X_5 is A, R, N, D, C, Q, E, G, H, I, L, K, M, F, P, S, T, W, Y or V; and
c) a 3' non-translated region which functions in plant cells to cause the addition of a stretch of polyadenyl nucleotides to the 3' end of the RNA sequence;
where the promoter is heterologous with respect to the structural DNA sequence and adapted to cause sufficient expression of the encoded EPSPS enzyme to enhance the glyphosate tolerance of a plant cell transformed with the DNA molecule.

5,866,775 - "Glyphosate-Tolerant-Enolpyruvylshikimate-3-Phosphate Synthases":

Claim 5. A gene encoding a glyphosate-tolerant 5-enolpyruvyl-3-phosphoshikimate (EPSP) synthase enzyme which encodes a first amino acid sequence:

-L-G-N-A-A-T-A-

between positions 80 and 120 in the mature EPSP synthase enzyme, and encodes a second amino acid sequence:

-A-L-L-M-X_1-A-P-L-T-

where X_1 is either alanine, serine or threonine, where said second amino acid sequence is located between positions 170 and 210 in the mature EPSP synthase enzyme.

5,312,910 - "Glyphosate-Tolerant-Enolpyruvylshikimate-3-Phosphate Synthases":

Claim 1: A plant gene encoding a glyphosate-tolerant 5-enolpyruvyl-3-phosphoshikimate (EPSP) synthase, said EPSP synthase having the amino acid sequence:

-L-G-N-A-A-T-A-

between positions 80 and 120 in the mature EPSP synthase sequence.